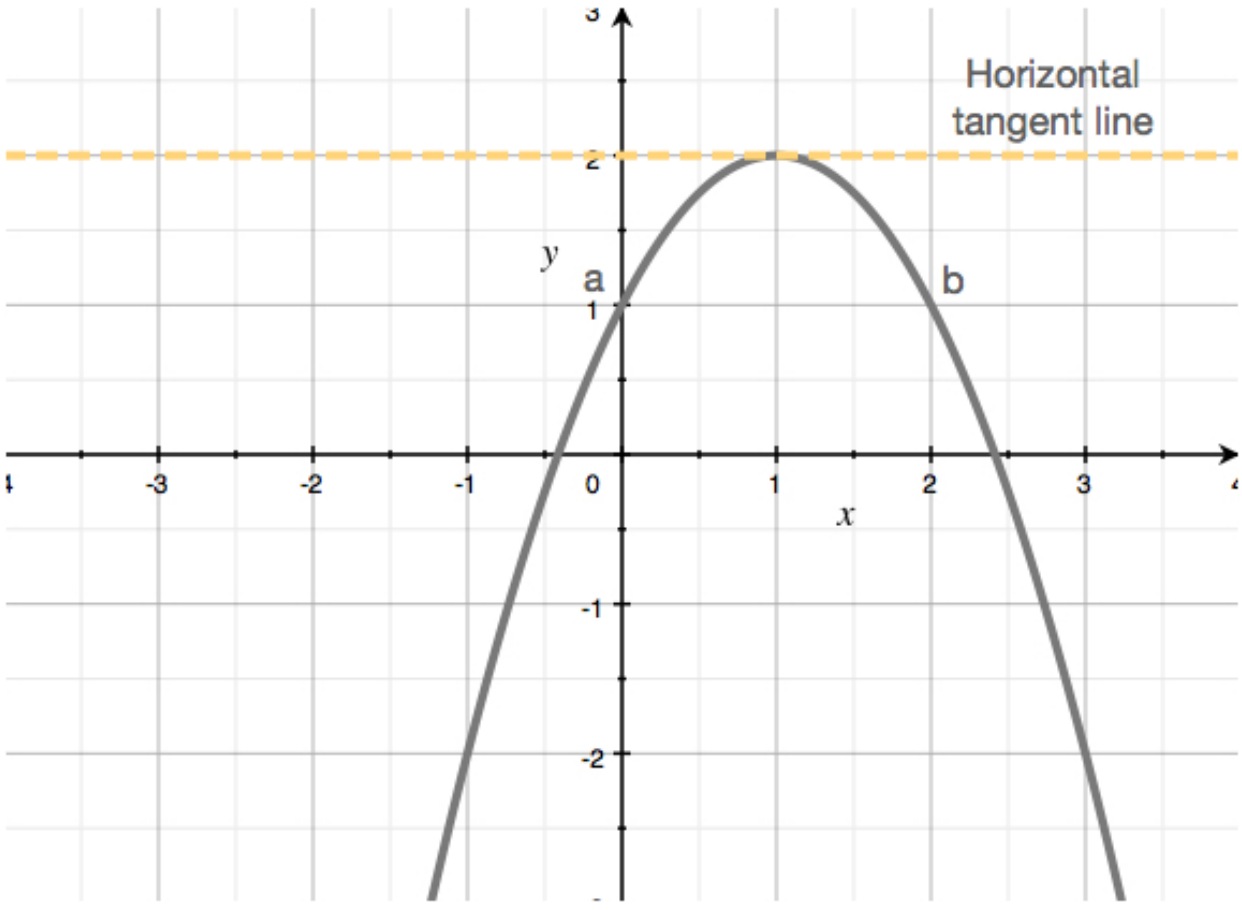
# Rolle's theorem

Rolle's Theorem is a specific instance of the Mean Value Theorem. Rolle's Theorem can only be applied to

1. functions on a closed interval,
2. where the function is differentiable on the open interval,
3. and where the value of the function at the endpoints of the interval are equal to one another.

For functions of this type, Rolle's Theorem proves that, at some point between $a$ and $b$, the derivative must be equal to $0$. Since the derivative is the slope of the tangent line, and any line that has a slope of $0$ is a horizontal line, this means also that the tangent line must be horizontal and parallel to the $x$-axis at some point in the interval.

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